

WHAT IS CLAIMED IS:

- 1 1. A method of self-programming a graphics processing unit (GPU), the
2 method comprising:
3 receiving from the CPU a blit instruction defining a blit operation; and
4 storing a first control value in a control register using the blit operation,
5 wherein the first control value in the control register determines the behavior of the GPU.
- 1 2. The method of claim 1, further comprising applying the blit operation
2 to a second control value to determine the first control value.
- 1 3. The method of claim 2, wherein the second control value is stored in a
2 memory.
- 1 4. The method of claim 3, wherein the memory is a second control
2 register.
- 1 5. The method of claim 3, wherein the second control value is stored in a
2 table of control values accessed by an index value.
- 1 6. The method of claim 5, further comprising changing the index value to
2 access a third control value in the table following the blit operation.
- 1 7. The method of claim 2, wherein the second control value is a starting
2 memory address for a display buffer.
- 1 8. The method of claim 2, wherein the second control value is a clip plane
2 distance.
- 1 9. The method of claim 8, wherein the second control value is greater
2 than the depth extent of an object.
- 1 10. The method of claim 1, wherein the blit operation includes a colorkey
2 operation.
- 1 11. The method of claim 1, wherein the blit operation includes a logic
2 operation on the first control value.

1 12. The method of claim 1, wherein the blit operation includes a pattern
2 copy operation.

1 13. The method of claim 2, wherein the first control value is a copy of the
2 second control value.

1 14. The method of claim 1, wherein receiving comprises reading a blit
2 instruction from a command buffer asynchronously with the CPU.

1 15. A graphics rendering system comprising:
2 a central processing unit;
3 a graphics processing unit adapted to create graphics data in response to a
4 graphics command, wherein the graphics processing unit has a control register and a blit
5 engine; and
6 a command buffer adapted to receive at least a first graphics command
7 from the central processing unit and further adapted to communicate the first graphics
8 command to the graphics processing unit;
9 wherein, the blit engine is adapted to store a first control value in the
10 control register in response to the first graphics command.

1 16. The graphics rendering system of claim 15, wherein the blit engine is
2 adapted to apply a blit operation to a second control value to determine the first control value.

1 17. The graphics rendering system of claim 16, further comprising a
2 memory adapted to store the second control value.

1 18. The graphics rendering system of claim 17, wherein the memory is a
2 second control register.

1 19. The graphics rendering system of claim 17, wherein the memory
2 comprises a table of control values including the second control value and accessed by an
3 index value.

1 20. The graphics rendering system of 16, wherein the second control value
2 is a starting memory address for a display buffer.

1 21. The graphics rendering system of claim 16, wherein the second control
2 value is a clip plane distance.

1 22. The graphics rendering system of claim 16, wherein the blit engine is
2 adapted to perform a colorkey operation on the second control value.

1 23. The graphics rendering system of claim 15, wherein the blit engine is
2 adapted to perform a logic operation on the first control value.

1 24. A method of self-programming a graphics processing unit (GPU) using
2 a set of GPU commands created by a driver, the method comprising:
3 writing a first set of rendering commands to a command buffer;
4 writing a set of self-programming commands including a blit instruction to the
5 command buffer; and
6 writing a second set of rendering commands to the command buffer.

1 25. The method of claim 24, wherein the first set of rendering commands,
2 the set of self-programming commands, and the second set of rendering commands are
3 written sequentially to the command buffer.

1 26. The method of claim 24, wherein the first set of rendering commands
2 is associated with a first image to be rendered to a first display buffer, the second set of
3 rendering commands is associated with a second image to be rendered to a second display
4 buffer, and the set of self-programming commands is adapted to instruct the GPU to display
5 the first image.

1 27. The method of claim 26, wherein the blit instruction is adapted to store
2 a memory address associated with the first display buffer in a control register of the GPU.

1 28. The method of claim 24, wherein the first set of rendering commands
2 is associated with a bounding box associated with an object and the second set of rendering
3 commands is associated with the object; and further wherein the set of self-programming
4 commands is adapted to instruct the GPU to evaluate the visibility of the bounding box and to
5 optionally bypass the rendering of the object in response to the evaluation of the visibility of
6 the bounding box.

1 29. The method of claim 28, wherein the blit instruction includes a
2 colorkey operation on a register of the GPU.

1 30. The method of claim 29, wherein the register of the GPU is a rendered
2 pixel count register.

1 31. The method of claim 29, wherein the blit instruction is adapted to store
2 a control value in a control register in response to the colorkey operation, and wherein the
3 control value is adapted to instruct the GPU to abort the processing of the second set of
4 rendering commands.

1 32. The method of claim 31, wherein the control value is a clip plane
2 distance.

1 33. An information storage medium having a set of instructions adapted to
2 direct an information processing device in communication with a graphics processing unit
3 (GPU) to perform the steps of:

4 writing a first set of rendering commands to a command buffer;
5 writing a set of self-programming commands including a blit instruction to the
6 command buffer; and
7 writing a second set of rendering commands to the command buffer.

1 34. The information storage medium of claim 33, wherein the first set of
2 rendering commands, the set of self-programming commands, and the second set of rendering
3 commands are written sequentially to the command buffer.

1 35. The information storage medium of claim 33, wherein the first set of
2 rendering commands is associated with a first image to be rendered to a first display buffer,
3 the second set of rendering commands is associated with a second image to be rendered to a
4 second display buffer, and the set of self-programming commands is adapted to instruct the
5 GPU to display the first image.

1 36. The information storage medium of claim 35, wherein the blit
2 instruction is adapted to store a memory address associated with the first display buffer in a
3 control register of the GPU.

1 37. The information storage medium of claim 33, wherein the first set of
2 rendering commands is associated with a bounding box associated with an object and the
3 second set of rendering commands is associated with the object; and further wherein the set
4 of self-programming commands is adapted to instruct the GPU to evaluate the visibility of the
5 bounding box and to optionally bypass the rendering of the object in response to the
6 evaluation of the visibility of the bounding box.

1 38. The information storage medium of claim 37, wherein the blit
2 instruction includes a colorkey operation on a register of the GPU.

1 39. The information storage medium of claim 38, wherein the register of
2 the GPU is a rendered pixel count register.

1 40. The information storage medium of claim 38, wherein the blit
2 instruction is adapted to store a control value in a control register in response to the colorkey
3 operation, and wherein the control value is adapted to instruct the GPU to abort the
4 processing of the second set of rendering commands.

1 41. The information storage medium of claim 40, wherein the control
2 value is a clip plane distance.